



sample space, events, and the three rules everything else is built from



Random experiments and sample space

- a random experiment can be repeated under identical conditions, but its outcome can't be predicted with certainty in advance
- the sample space S is the SET of every possible outcome of the experiment
- an event is simply a subset of the sample space S . It either happens, the actual outcome lies in it, or it doesn't
- example: tossing two coins gives the sample space HH, HT, TH, TT, four equally likely outcomes

Kinds of events

Simple event

exactly one outcome, a singleton subset of S

Compound event

more than one outcome grouped together

Sure event

the event S itself, it always happens

Impossible event

the empty set $\emptyset$, it never happens

Sample space, laid out as a tree

Toss two coins



all four equally likely outcomes of tossing two coins, one branch per outcome

